SECTION 08210--FLUSH WOOD DOORS

PART 1--GENERAL

SUMMARY:

Provide and install flush wood doors in accordance with these specifications and as shown on the drawings.

Section Includes: Work includes, but is not limited to:

Solid core doors with wood veneer faces.

Solid core doors with plastic laminate faces.

Hollow core doors with wood veneer faces.

[DELETE SPECIAL SERVICES BELOW NOT APPLICABLE TO PROJECT.]

Shop priming of flush wood doors.

Factory finishing of flush wood doors.

[DELETE BELOW IF NO LOUVERS OR LIGHTS (WOOD OR METAL) ARE REQUIRED FOR WOOD DOORS.]

Louvers and light frames for flush wood doors.

Related Sections: The following Sections contain requirements that relate to this Section:

[LIST BELOW ONLY PRODUCTS, CONSTRUCTION, AND EQUIPMENT FOR THIS PROJECT THAT THE READER MIGHT EXPECT TO FIND IN THIS SECTION BUT ARE SPECIFIED ELSEWHERE. VERIFY THAT THE SECTION TITLES LISTED BELOW FOR THIS PROJECT'S SPECIFICATIONS ARE CORRECT.]

Section 08110, Steel Doors and Frames for steel frames that support wood doors.
Section 08700, Door Hardware
Section 09900, Painting

REFERENCES:

The following documents, including others referenced therein, form part of this Section to the extent designated herein.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM E 152 Standard Methods of Fire Tests of Door Assemblies

ARCHITECTURAL WOODWORK INSTITUTE (AWI)

Architectural Woodwork Quality Standards

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 80 Fire Doors and Fire Windows

NATIONAL ELECTRIC MANUFACTURERS ASSOCIATION (NEMA)

DOOR HARDWARE INSTITUTE (DHI)

SUBMITTALS:

Submittals include, but are not limited to the following:

Product Data: Submit product data for each type of door, including details of core and edge construction, trim for openings and louvers, and factory-finishing specifications.

[DELETE BELOW IF NOT REQUIRED OR REVISE TO SUIT PROJECT.]

Shop Drawings: Submit shop drawings indicating location and size of each door, elevation of each kind of door, details of construction, location and extent of hardware blocking, fire ratings, requirements for veneer matching and factory finishing and other pertinent data.

[DELETE BELOW IF NO LIGHTS OR LOUVERS, OR IF NO FACTORY-MACHINED DOORS.]

For factory-machined doors, indicate dimensions and locations of cutouts for locksets and other cutouts adjacent to light and louver openings.

Samples for Initial Selection: Submit samples. Samples shall be in the form of color charts consisting of actual materials in small sections for the following:

[DELETE SUBPARAS BELOW THAT DO NOT APPLY TO FINISHES RETAINED IN PART 2.]

Plastic laminate door faces. Show the full range of colors, textures, and patterns available.

Faces of factory-finished doors with transparent finish. Show the full range of colors available for stained finishes.

Faces of factory-finished doors with opaque finish. Show the full range of colors available.

Samples for Verification: Submit samples in the form and size indicated below:

[DELETE SUBPARA BELOW IF NOT SPECIFYING DOORS WITH TRANSPARENT FINISH.]

Corner sections of doors approximately 12 inches square with door faces and edging representing the typical range of color and grain for each species of veneer and solid lumber required. Finish sample with same materials proposed for factory-finished doors.

[DELETE SUBPARAS BELOW THAT DO NOT CORRESPOND TO PRODUCTS SPECIFIED IN PART 2.]

Plastic laminate-clad door sections, 6 inches square, for each color, texture, and pattern selected.

Louvers consisting of blade and frame, 6 inches long, for each material and finish specified.

Frames for light openings, 6 inches long, for each material, type, and finish required.

Warranties: Submit warranties as called for in "Warranty".

See Section 01300, Submittals and the Vendor Data Schedule for additional submittal requirements.

QUALITY CONTROL:

Regulatory Requirements (Codes and Standards): Conform to provisions of the following codes and standards, unless otherwise specified:

AWI Architectural Woodwork Quality Standards

[DELETE BELOW IF NO FIRE-RATED DOORS.]

Fire-Rated Wood Doors: Provide wood doors that comply with NFPA 80; are identical in materials and construction to units tested in door and frame assemblies per ASTM E 152; and are labeled and listed by Underwriters' Laboratories (UL) or Warnock Hersey.

Oversized, Fire-Rated Wood Doors: For door assemblies exceeding sizes of tested assemblies, provide manufacturer's certificate stating that doors conform to all standard construction requirements of tested and labeled fire-door assemblies except for size.

Temperature Rise Rating: At stairwell enclosures, provide doors that have a temperature rise rating of 450° F maximum in 30 minutes of fire exposure.

[DELETE ABOVE, BELOW, OR BOTH TO SUIT CODE REQUIREMENTS.]

Temperature Rise Rating: At stairwell enclosures, provide doors that have a temperature rise rating of 250° F maximum in 30 minutes of fire exposure.

Single-Source Responsibility: Obtain doors from one source and by a single manufacturer.

DELIVERY, STORAGE, AND HANDLING:

Protect doors during transit, storage, and handling to prevent damage, soiling, and deterioration. Comply with requirements of referenced standard and manufacturer's instructions.

Identify each door with individual opening numbers as designated on shop drawings, using temporary, removable, or concealed markings.

Protect doors as recommended by door manufacturer to ensure that wood doors will be without damage or deterioration at the time of Substantial Completion.

PROJECT CONDITIONS:

Conditioning: Do not deliver or install doors until conditions for temperature and relative humidity have been stabilized and will be maintained in storage and installation areas during the remainder of the construction period to comply with the following requirements applicable to Project's geographical location:

AWI quality standard Section 100-S-11 "Relative Humidity and Moisture Content."

WARRANTY:

General Warranty: Door manufacturer's warranty specified in this Article shall not deprive the Government of other rights the Government may have under other provisions of the Subcontract Documents and shall be in addition to, and run concurrent with, other warranties made by the Subcontractor under requirements of the Subcontract Documents.

Door Manufacturer's Warranty: Submit written agreement on door manufacturer's standard form signed by manufacturer, Installer, and Subcontractor, agreeing to repair or replace defective doors that have warped (bow, cup, or twist) more than 1/4 inch in a 42-by-84-inch section or that show telegraphing of core construction in face veneers exceeding 0.01 inch in a 3-inch span, or do not conform to tolerance limitations of referenced quality standards.

Warranty shall also include installation and finishing that may be required due to repair or replacement of defective doors where defect was not apparent prior to hanging.

[REVISE BELOW TO SUIT PROJECT. STANDARD MFRS WARRANTY GENERALLY GOES INTO EFFECT ON DATE OF SHIPMENT, NOT PROJECT ACCEPTANCE.]

Warranty shall be in effect during the following period of time after date of Substantial Completion.

[BELOW ARE GENERALLY AVAILABLE FROM MAJOR MFRS. RETAIN APPLICABLE TYPES, AND SELECT OR REVISE WARRANTY TO SUIT PROJECT MFRS SELECTED.

WARRANTIES VARY FROM NONE TO FIVE YEARS FOR EXTERIOR APPLICATION; BELOW IS TYPICAL. REVISE TO SUIT PROJECT AFTER VERIFYING AVAILABILITY OF OTHER WARRANTIES WITH MFRS SELECTED.]

Solid Core Exterior Doors: Two years.

Solid Core Interior Doors: Life of installation.

Hollow Core Interior Doors: Two years.

PART 2--PRODUCTS

MANUFACTURERS:

Available Manufacturers: Subject to compliance with requirements, manufacturers offering doors that may be incorporated in the Work include, but are not limited to, the following:

Solid Core Doors:

[MARLITE AND PONCRAFT ONLY MAKE DOORS WITH PLASTIC LAMINATE FACES.]

Algoma Hardwoods Inc.
Ampco Products, Inc.
Eagle Plywood & Door Manufacturing, Inc.
Eggers Industries, Architectural Door Division.
Fenestra Corporation.
Marlite.
Mohawk Flush Doors, Inc.
Poncraft Door Co.
Weyerhauser Co.

Hollow Core Doors:

Algoma Hardwoods Inc.
Ampco Products, Inc.
Eggers Industries, Architectural Door Division.
Marlite.
Mohawk Flush Doors, Inc.
Weyerhauser Co.

INTERIOR FLUSH WOOD DOORS:

Interior Solid Core Doors for Transparent Finish: Comply with the following requirements:

[BELOW IS AN EXAMPLE ONLY; REVISE AS REQUIRED. ALWAYS VERIFY AVAILABILITY IN GRADE SELECTED. COORDINATE WITH ARTICLE ON MATCHING.]

Faces: White birch, plain sliced.
Grade: Custom.
Construction: 5 or 7 plies.
Core: Particle board core.
Bonding: Stiles and rails bonded to core, then entire unit abrasive planed before veneering.

Interior Solid Core Doors for Opaque Finish: Comply with the following requirements:

Faces: Any closed-grain hardwood of mill option, or medium-density overlay over standard thickness hardwood face veneers.
Grade: Custom.
Construction: 5 or 7 plies.
Core: Particle board core.

Bonding: Stiles and rails bonded to core, then entire unit abrasive planed before veneering.

[DELETE ABOVE OR BELOW FOR OPAQUE FINISHED WOOD DOORS. PLASTIC LAMINATE FACES ARE GENERALLY MORE EXPENSIVE THAN OPAQUE FINISHES, BUT OFFER GREATER DURABILITY AND RESISTANCE TO ABRASION AND DAMAGE.]

Interior Solid Core Doors with Plastic Laminate Faces: Comply with the following requirements:

Laminate Faces: High-pressure, decorative laminates complying with NEMA LD 3 and as follows:

Colors, Patterns, and Finishes: As indicated or, if not otherwise indicated, as selected by Architect from laminate manufacturer's full range of products.
Faces: GP-50 (0.050-inch nominal thickness).

Grade: Custom.
Construction: 5 plies.
Construction: Plastic laminate faces glued directly to core.
Core: Particle board core.
Bonding: Stiles and rails bonded to core, then entire unit abrasive planed before veneering.

Interior Fire-Rated Solid Core Doors: Comply with the following requirements:

Faces and Grade: Provide faces and grade to match non-fire-rated doors in same area of building, unless otherwise indicated.
Construction: Manufacturer's standard core construction as required to provide fire-resistance rating indicated.

Blocking: Provide composite blocking designed to maintain fire resistance of door but with improved screw-holding capability of same thickness as core and with minimum dimensions as follows:

[RETAIN CHOICES BELOW AND SUBPARA ABOVE ONLY AFTER VERIFYING AVAILABILITY FOR FIRE-RESISTANCE RATING REQUIRED.]

5-inch top rail blocking.
5-inch bottom rail blocking.
5-by-18-inch lock blocks.
5-inch midrail blocking.

Edge Construction: Provide manufacturer's standard laminated-edge construction for improved screw-holding capability and split resistance as compared to edges composed of a single layer of treated lumber.

Pairs: Provide fire-rated pairs with fire-retardant stiles that are labeled and listed for kinds of applications indicated without formed-steel edges and astragals.

Interior Hollow Core Doors for Transparent Finish: Comply with the following requirements:

[BELOW IS AN EXAMPLE ONLY; REVISE AS REQUIRED.]

Faces: White birch, rotary cut.
Grade: Custom.
Core: Institutional hollow core.
Blocking: Provide wood blocking of same thickness as core with minimum dimensions as follows:

5-inch top rail blocking.
10-inch bottom rail blocking.
5-by-18-inch lock blocks.
2-1/2-inch midrail blocking.

Interior Hollow Core Doors for Opaque Finish: Comply with the following requirements:

Faces: Any closed-grain hardwood of mill option, or medium-density overlay over standard thickness hardwood face veneers.
Grade: Custom.
Core: Institutional hollow core.
Blocking: Provide wood blocking of same thickness as core with minimum dimensions as follows:

5-inch top rail blocking.
10-inch bottom rail blocking.
5-by-18-inch lock blocks.
2-1/2-inch midrail blocking.

Interior Hollow Core Doors with Plastic Laminate Faces: Comply with the following requirements:

Laminate Faces: High-pressure, decorative laminates complying with NEMA LD 3 "High Pressure Decorative Laminates" and as follows:

Colors, Patterns, and Finishes: As indicated or, if not otherwise indicated, as selected by Architect from laminate manufacturer's full range of products.

Faces: GP-50 (0.050-inch nominal thickness).

Grade: Custom.
Construction: 5 plies.
Core: Institutional hollow core.
Blocking: Provide wood blocking of same thickness as core with minimum dimensions as follows:

5-inch top rail blocking.
10-inch bottom rail blocking.
5-by-18-inch lock blocks.
2-1/2-inch midrail blocking.

LOUVERS AND LIGHT FRAMES:

[DELETE THE FOLLOWING IF NO LOUVERS OR LIGHT FRAMES ARE REQUIRED. RETAIN APPLICABLE TYPES. COORDINATE DRAWINGS IF MORE THAN ONE TYPE IS REQUIRED.]

Metal Louvers: Size, type, and profile shown and fabricated from the following:

[SELECT APPLICABLE MATERIAL. DELETE OTHERS.]

Galvanized Steel: 0.0396 inch thick; hot dip, zinc coated, and factory primed for paint finish.
Color-Anodized Aluminum: Extruded aluminum with AA-C22A32, Class II finish; standard industry color(s) as indicated.

[INSERT REQUIREMENTS FOR OTHER KINDS OF LOUVERS, GRILLES, AND VENTS AS REQUIRED.]

Metal Frames for Light Openings in Fire Doors: Manufacturer's standard frame formed of 0.0478-inch- thick cold-rolled steel sheet, factory primed, and approved for use in doors of fire-rating indicated.

[DELETE ABOVE OR BELOW OR BOTH IF NO LIGHT OPENINGS. IF FRAMES FOR NON-FIRE-RATED DOORS ARE REQUIRED, INSERT REQUIREMENTS. OTHER TYPES OF FRAMES ARE AVAILABLE FROM SOME MFRS.]

Wood-Veneered Beads for Light Openings in Fire Doors: Manufacturer's standard wood-veneered steel beads matching veneer species of door faces and approved for use in doors of fire-rating indicated.

FABRICATION:

Factory fit doors to suit frame-opening sizes indicated, with uniform clearances and bevels to comply with clearance requirements of referenced quality standard for fitting. Comply with requirements of NFPA 80 for fire-resistance-rated doors.

Factory machine doors for hardware that is not surface applied. Locate hardware to comply with DHI-WDHS-3. Comply with final hardware schedules, door frame shop drawings, DHI A115-W series standards, and hardware templates.

Coordinate measurements of hardware mortises in metal frames to verify dimensions and alignment before proceeding with factory machining.

[RETAIN BELOW WITH PAIRS OF PREFITTED FIRE DOORS WHERE ASTRAGALS, ETC., ARE REQUIRED.]

Metal Astragals: Premachine astragals and formed-steel edges for hardware for pairs of fire-rated doors.

[DELETE BELOW IF NOT APPLICABLE. INDICATE HERE OR ON DRAWINGS IF DOORS AND TRANSOMS ARE TO BE RABBETED.]

Transom and Side Panels: Fabricate matching panels with same construction, exposed surfaces, and finish as specified for associated doors.

[DELETE BELOW IF NONE OR REVISE IF ANOTHER METHOD OF ATTACHMENT IS REQUIRED.]

Fixed Transom Panels: Fabricate fixed panels with solid lumber transom bottom rail and door top rail, both rabbeted as indicated. Provide factory-installed spring bolts for concealed attachment into jambs of metal door frames.

[DELETE BELOW IF NO OPENINGS IN DOORS.]

Openings: Cut and trim openings through doors to comply with applicable requirements of referenced standards for kind(s) of door(s) required.

[RETAIN APPLICABLE REQUIREMENTS BELOW IF THERE ARE ANY OPENINGS.]

Light Openings: Trim openings with moldings of material and profile indicated.
Louvers: Factory install louvers in prepared openings.

SHOP PRIMING:

[DELETE THIS ARTICLE IF FACTORY-FINISHED DOORS ARE REQUIRED. FACTORY FITTING IS RECOMMENDED TO MINIMIZE DAMAGE TO SHOP-PRIMED DOORS.]

Doors for Opaque Finish: Shop prime exposed portions of doors for paint finish with one coat of wood primer specified in Division 9 Section, "Painting."

[RETAIN ABOVE OR BELOW OR BOTH AS APPLICABLE.]

Transparent Finish: Shop-seal faces and edges of doors for transparent finish with stain (if required), other required pretreatments, and first coat of finish as specified in the following:

Section 09900, Painting

[DELETE ABOVE OR BELOW IF NOT APPLICABLE.]

Section ?????, Exterior Wood Stains

FACTORY FINISHING:

[DELETE THIS ARTICLE IF FACTORY FINISHING IS NOT REQUIRED.]

General: Comply with referenced quality standard's requirements for factory finishing. Finish wood doors at factory.

[DELETE ABOVE OR BELOW. ABOVE REQUIRES FACTORY FINISHING ALL DOORS, BELOW ONLY THOSE INDICATED ON DRAWINGS OR SCHEDULES. REVISE IF FINISHING IS TO BE PERFORMED AT ANOTHER LOCATION, SUCH AS A WOODWORKER'S SHOP.]

Finish wood doors at factory where indicated on schedules or Drawings as factory finished.

[BELOW ARE EXAMPLES ONLY; REVISE AS REQUIRED. VERIFY AVAILABILITY WITH MFRS SELECTED. CAUTION: AWI FINISH SYSTEMS CAN VARY FROM MFR TO MFR. REQUIRE SAMPLES FOR VERIFICATION.]

Transparent Finish: Comply with requirements indicated for grade, finish system, staining effect, and sheen.

Grade: Custom.
Finish: AWI System TR-2 catalyzed lacquer.
Staining: None required.
Staining: Match approved sample for color.
Staining: Match Architect's sample.

[SELECT 1 REQUIREMENT FROM 3 ABOVE AND 2 BELOW. USUALLY RETAIN FILLED FINISH.]

Effect: Open-grain finish.
Effect: Filled finish.

[SELECT 1 REQUIREMENT FROM 2 BELOW OR REVISE. INSERT NUMERICAL VALUES FOR GLOSS IF DIFFERENT FROM THOSE IN AWI STANDARD.]

Sheen: Satin.
Sheen: Semigloss.

[VERIFY AVAILABILITY OF OPAQUE FINISHES WITH MFRS SELECTED.]

Opaque Finish: Comply with requirements indicated for grade, finish system, color, and sheen.
Grade: Custom.
Finish: AWI System OP-2 catalyzed lacquer.
Color: Match approved sample for color selected by Architect from manufacturer's standard colors.

[DELETE ABOVE OR BELOW.]

Color: Match Architect's sample.

[SELECT 1 REQUIREMENT FROM 3 BELOW. INSERT NUMERICAL VALUES FOR GLOSS IF DIFFERENT FROM THOSE IN AWI STANDARD.]

Sheen: Satin.
Sheen: Semigloss.
Sheen: Gloss.

PART 3--EXECUTION

EXAMINATION:

Examine installed door frames prior to hanging door. Verify that frames comply with indicated requirements for type, size, location, and swing characteristics and have been installed with plumb jambs and level heads. Reject doors with defects.

Do not proceed with installation until unsatisfactory conditions have been corrected.

INSTALLATION:

Hardware: For installation see Section 08700, Door Hardware.

Manufacturer's Instructions: Install wood doors to comply with manufacturer's instructions and referenced quality standard and as indicated.

[DELETE BELOW IF NO FIRE-RATED WOOD DOORS.]

Install fire-rated doors in corresponding fire-rated frames according to requirements of NFPA 80.

[DELETE BELOW IF ALL DOORS ARE FACTORY FITTED. FACTORY FITTING OF FIRE-RATED DOORS IS PREFERABLE TO JOB FITTING BECAUSE OF LIMITATIONS ON TRIMMING NARROWER STILES AND RAILS.]

Job-Fit Doors: Align and fit doors in frames with uniform clearances and bevels as indicated below; do not trim stiles and rails in excess of limits set by manufacturer or permitted with fire-rated doors. Machine doors for hardware. Seal cut surfaces after fitting and machining.

Fitting Clearances for Non-Fire-Rated Doors: Provide 1/8 inch at jambs and heads, 1/16 inch per leaf at meeting stiles for pairs of doors, and 1/8 inch from bottom of door to top of decorative floor finish or covering. Where threshold is shown or scheduled, provide 1/4-inch clearance from bottom of door to top of threshold.

[DELETE BELOW IF NO FIRE-RATED WOOD DOORS.]

Fitting Clearances for Fire-Rated Doors: Comply with NFPA 80.

Bevel non-fire-rated doors 1/8 inch in 2 inches (3-1/2 degrees) at lock and hinge edges.

Bevel fire-rated doors 1/8 inch in 2 inches (3-1/2 degrees) on lock edge; trim stiles and rails only to extent permitted by labeling agency.

Factory-Fitted Doors: Align in frames for uniform clearance at each edge.

Factory-Finished Doors: Restore finish before installation, if fitting or machining is required at the job site.

[DELETE ABOVE IF NO FACTORY-FINISHED DOORS, BELOW IF NO FIELD-FINISHED DOORS.]

Field-Finished Doors: Refer to the following for finishing requirements:

Section 09900, Painting

[DELETE ABOVE OR BELOW IF NOT APPLICABLE.]

Section ?????, Exterior Wood Stains

FIELD QUALITY CONTROL:

Surveillance will be performed by the Contractor's Representative to verify compliance of the work to the drawings and specifications.

ADJUSTING AND PROTECTION:

Operation: Rehang or replace doors that do not swing or operate freely.

Finished Doors: Refinish or replace doors damaged during installation.

Prime Coat Touch up: Immediately after erection, sand smooth any rusted or damaged areas of prime coat and apply Touch up of compatible air-drying primer.

Protection Removal: Immediately prior to final inspection, remove protective plastic wrappings from prefinished doors.

Final Adjustments: Check and readjust operating finish hardware items, leaving steel doors and frames undamaged and in complete and proper operating condition.

END OF SECTION 08210

SECTION 08350--FOLDING DOORS

PART 1--GENERAL

SUMMARY:

Section Includes: Work includes, but is not limited to:

Furnish and install folding (accordion) door(s) located within the administrative area.

REFERENCES:

The following documents, including others referenced therein, form part of this Section to the extent designated herein:

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM E 90	Standard Test Method for Laboratory Measurement of Airborne Sound Loss of Building Partitions and Elements
ASTM E 557	Standard Practice for Architectural Application and Installation of Operable Partitions

SUBMITTALS:

Submittals include, but are not limited to the following:

Product Data: Submit product data indicating compliance with the requirements of this Section.

Samples: Submit samples for color selection by the Contractor.

See Section 01300, Submittals and the Vendor Data Schedule for additional submittal requirements.

QUALITY CONTROL:

Laboratory Acoustical Performance of the folding partition shall have been tested in an independent acoustical laboratory in accordance with ASTM E 90 test procedure, and shall have attained an STC of no less than 40. Written test report by the test facility shall be available upon request.

DELIVERY, STORAGE AND HANDLING:

Deliver doors to the project site in the original, unopened packages, clearly marked with product name and manufacturer. Store inside in a manner to protect from damage and moisture.

The packages shall be inspected for damage, by the Subcontractor, upon receipt. Damaged product shall not be used.

PART 2--PRODUCTS

MATERIALS:

The folding door shall be a Soundmaster 12 as manufactured by Modernfold or approved equal. Construction of the folding partition shall be as follows.

Frame construction shall consist of steel hinge plates, welded to 3/16-in. diameter vertical steel rods. Single row at bottom, intermediate rows approximately 42 in. on center, single row at top. Trolley pin of high tensile, alloy steel to be encased on structural hinge plate channel.

Outer covering shall be Modernfold's Heavy Duty Vinyl Fabric with reinforcing woven fiber backing. Outer covering shall be Class "A" Frame Spread Rating. Submit samples for color selection.

Sound seals shall be pairs of flexible sweep strips at top and bottom. Vertical female sound channel--polyurethane-foam lined.

All folding doors shall be equipped with ceiling guards and No. 7 track for recessed installation.

Air release system: Air trapped within the partition shall be released during entire tacking operation through 3/8 in. diameter holes, which comprise a minimum of 5% of lead post face area.

Sound insulation: 22 ga. V-grooved steel panels and heavy vinyl flame-resistant acoustical membrane. Each panel attaches to frame with steel leaf fasteners.

Suspension system shall consist of continuous C Channel shape track, connected to the structural support. Frame shall be supported by ball bearing trolley assemblies.

Operation shall be manual with latches at each side of the door. An adjustable strap shall be provided to assist in holding the door in a stacked position at each side of the room.

PART 3--EXECUTION

INSTALLATION/APPLICATION/ERECTION:

Installation shall be by a local authorized factory trained installer. Installation shall be in accordance with the manufacturer's instructions and in accordance with ASTM E 557.

FIELD QUALITY CONTROL:

Surveillance will be performed by the Contractor's Representative to verify compliance of the work to the drawings and specifications.

END OF SECTION 08350

SECTION 08362--INSULATED SECTIONAL OVERHEAD DOOR

PART 1--GENERAL

SUMMARY:

Section Includes: Work includes, but is not limited to:

Furnish and install sectional overhead doors as shown on the drawings.

Coordinate work closely with metal building manufacturer to assure compatibility and that all backing and framing have been provided. Furnish all necessary inserts and anchoring.

Related Sections:

Division 16 sections for electrical requirements

REFERENCES:

The following documents, including others referenced therein, form part of this Section to the extent designated herein:

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM C 236	Standard Test Method for Steady-State Thermal Performance of Building Assemblies by Means of a Guarded Hot Box
ASTM E 283	Standard Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen

NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)

SUBMITTALS:

Submittals include, but are not limited to the following:

Product Data: Submit product data indicating compliance with the requirements of this Section and including installation instructions.

See Section 01300, Submittals and the Vendor Data Schedule for additional submittal requirements.

QUALITY CONTROL:

Single Source Responsibility: Provide the sectional overhead door(s) as complete units produced by one manufacturer, including sections, brackets, guides, tracks, glazing, counterbalance mechanisms, hardware, operator and installation accessories, to suit openings and head room allowable.

PART 2--PRODUCTS

OVERHEAD DOOR(S):

The door(s) shall be [motor] [chain] operated and insulated to provide a minimum "R" value of 14 ("U" 0.070) for the individual panels and a minimum "R" value of 7 ("U" 0.143) for the door(s) in place when tested in accordance with ASTM C 236. The sections shall be sandwich construction steel/foam/steel with the insulation foamed in place. The section shall be galvanized sheet steel, 0.016-in. thick minimum, with ribbed or fluted face finished as specified hereinafter.

The door(s) shall be designed to withstand and operate under a 30 psf wind load and [10,000)] [25,000] [50,000] [100,000] operating cycles.

MANUFACTURERS:

Acceptable products are:

Overhead Door Company "Thermacore 591"
Ceco/Windsor "2001"
Kinnear "Climaseal"
Wayne-Dalton "Thermospan"
Raynor TC-20

MATERIALS:

Track: Tracks shall be 2 in. for doors up to 144 s.f. and/or 16 ft in height, and 3 in. for larger doors. Tracks shall be of galvanized steel and shall be supplied with mounting brackets, fasteners, etc., for a complete installation. Where possible, the track shall provide for high lift operation such that the door in the raised position encroaches on the interior space no more than 6 ft.

Glazing: Windows shall be the door manufacturers standard in the numbers indicated on drawings (see Building Elevations), and shall be double glazed.

Weatherstrip: The door shall be provided with head, jamb, threshold, and joint weatherstripping which will allow a maximum of 0.19 CFM/ft^3 of door space at a pressure difference of 0.112 in. H_2O (15 MPH wind) when tested in accordance with ASTM E 283.

[FOR DOORS OVER 12 FT IN WIDTH CONSIDER SILL DETAIL AT FLOOR THRESHOLD.]

Rollers: Provide heavy-duty rollers, with steel ball bearings in case-hardened steel races, mounted with varying projections to suit slope of track. Extend roller shaft through both hinges where double hinges are required. Provide roller tires to suit size of track. Use casehardened steel tires for normal installations and neoprene or bronze for hazardous atmospheres.

Finishes: All sections shall be prefinished on the inside face and outside face. The outside face shall have a baked-on enamel finish. The color shall be white.

ELECTRIC DOOR OPERATOR: (See Electrical Section of these specifications)

General: Furnish electric door operator assembly of size and capacity recommended and provided by door manufacturer; complete with electric motor and factory-prewired motor controls including control transformer, gear reduction unit, solenoid operated brake, clutch, remote control stations and control devices and local disconnect switch.

Provide [sidemount] [centermount] gear hoist type, with worm and gear reduction drive, direct-couple chain to counterbalance shaft, and with auxiliary chain hoist and disconnect clutch.

[USE CENTERMOUNT OPERATORS WITH LARGE OR HIGH USE DOORS WHICH REQUIRE HIGH OR VERTICAL LIFT DOORS.]

Design operator so that motor may be removed without disturbing limit-switch adjustment and without affecting emergency auxiliary operator. The operator shall be designed so that the door will stop downward travel if the "down" control button is released.

[Jackshaft type, with clutch-disconnect release for manual operation, gear driven and roller chain drive connected to counterbalance shaft.]

[Centermount type, with V-belt and roller chain drive connected to counterbalance shaft, and with auxiliary chain-hoist and disconnect switch.]

Electric Motors: Provide high-starting torque, (1/2 min Hp), ___ phase ___ volts reversible, constant duty, Class A insulated electric motors with overload protection, sized to move door in either direction, from any position, at not less than 2/3 ft or more than 1 ft per second. Coordinate wiring requirements and current characteristics of motors with building electrical system. Provide open-drip-proof type motor, and controller with NEMA Type 1 enclosure.

Counter Balancing Mechanism: Operation by torsion-spring counterbalance mechanism, consisting of adjustable-tension, tempered-steel torsion springs mounted on a cross header tube or steel shaft. Connect to door with galvanized aircraft-type lift cables. Provide springs

calibrated for 50,000 cycles minimum. Spring shall have safety cable or other device to restrain springs in case of breakage.

Pushbutton Stations: Each overhead sectional door shall be equipped with two NEMA 1 (3) position pushbutton stations. One pushbutton station shall be mounted inside the building adjacent to the overhead sectional Doorjamb and one shall be mounted outside adjacent to the same doorjamb. Buttons shall be for open, close, and stop.

Automatic Reversing Control: Furnish each door with automatic safety (electric or pneumatic) switch, extending full width of door bottom, and located within neoprene or rubber astragal mounted to bottom door rail. Contact with switch will immediately reverse downward door travel. Furnish manufacturer's standard take-up reel or self-coiling cable.

Wireless Remote Control Stations with Minimum of Channels, Capable of Mounting on Vehicles Visor: Provide momentary-contact circuit boards for control of separate doors with three-button control station for each door with push button controls labeled "Open", "Close", Stop".

ACCESSORIES:

Provide hand-operated disconnect or mechanism for automatically engaging sprocket chain operator and releasing brake for emergency manual operation. Include interlock device to automatically prevent motor from operating when emergency sprocket is engaged.

PART 3--EXECUTION

INSTALLATION:

Install door, track, and operating equipment complete with necessary hardware, jamb and head mold stops, anchors, inserts, hanger and equipment supports in accordance with final shop drawings, manufacturer's instructions, and as specified herein. Adjust tension on the springs for the doors, such that they can be moved manually with a force of 10 lbs.

Fasten vertical track assembly to framing at not less than 24-in. o.c. Hang horizontal track from structural overhead framing with angle or channel hangars, welded and bolt-fastened in place. Provide sway bracing, diagonal bracing, and reinforcing as required for rigid installation of track and door operating equipment.
Upon completion of installation, including work by other trades, lubricate, test and adjust doors to operate easily, free from warp, twist, or distortion and fitting weathertight for entire perimeter.

FIELD QUALITY CONTROL:

Surveillance will be performed by the Contractor's Representative to verify compliance of the work to the drawings and specifications.

END OF SECTION 08360